MARINE REVIEW.

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Science in Ship Building.

At the recent Engineering Congress in Chicago, a naval architect, who is at the head of the profession in this country, said in conversation following one of the morning sessions that it would be far better to give no recommendation at all to a young man seeking employment with the Cramps of Philadelphia than to say for him that he had taken a course of preliminary training in any of the scientific schools, here or abroad, devoted to naval architecture or marine engineering, and that what is true of the Cramps is also true of the managers of many other ship building establishments in this country. Dr. Elgar, who represented the scientific men of Great Britain in the congress, and who was a party to the conversation referred to, said that in that country, with all its advancement in the art of ship building, the greatest difficulty has been found, for many years past, in coping with this feeling among the older heads in the business, and although it is gradually being overcome, there are yet many draw-backs on account of it. As proof of Dr. Elgar's statement, it may be noted that in an English journal just at hand—Fairplay of London—a writer, who represents what might be called the practical element in Great Britain, ridicules "the professor" to the extent of a column or more, in a manner tending to leave the impression that the naval schools of countries farther advanced than the United States in the ship building industry are utterly useless.

"I am sometimes almost tempted to ask," says the critic, who is writing editorially in the English journal, "what benefit has been conferred on the world by the institution of the chair of naval architecture at the Glasgow University. To put the question in another way, what on earth is the use of the new-fashioned professors of naval architecture? We have a brace of them happily living amongst us, and in some form or other in daily evidence; but I fear that, so far as practical business is concerned their value lies rather in what they profess than in what they perform." This is followed by sarcastic reference to alleged failures made by Professor Biles in the management of the Southampton Naval Works and in designing the Windsor Castle, a famous fast paddle steamer, while Prof. Elgar, who is a director in the Fairfield Ship Building and Engineering Works, is charged with being responsible for a superfluous amount of vibration in the Campania.

Is it any wonder then that in this country the same conditions exist and are complained of by men in all ship yards, who realize the advantages of a combined theoretical and practical fitness for their work? Only a few days ago, a naval architect in one of the lake ship yards, who does not find his work altogether congenial, on account of being deprived of sufficient help to make necessary calculations, etc., but who is paid a good round sum for valuable services on an important contract, was talking over this subject, and to illustrate his argument cited a case of a steel vessel built to go through the Welland canal. The boat was to pass through the canal locks very often, and the most important instructions laid down by the owner was with regard to her draft. The expense and delays of pontooning were to be avoided, while the necessary features of seaworthiness and other qualities were to be secured, of course, and the distribution of material, in accordance with dimensions aside from the depth, taken into account. Unfortunately the boat had to be built from stock that had accumulated in the yard, and therein lay the greatest source of annoyance. "It was an uncommon occurrence," said the designer "to find an attempt to use a five-eighth piece of material where half-inch had been specified, and worst of all, I was told after my calculations proved correct and the boat had passed the locks by the closest kind of a margin, that it was all luck. This is only a mild case of its kind, but it will serve to show that the work on such calculations is not labor lost."

It is fortunate for this country that the ship building industry here begins to show a revival at a time when the fact has been demonstrated, however much may be said to the contrary, that science enters very largely into ship building, and there will be less prejudice to overcome than has been encountered in Great Britain and other countries that have been in advance of the United States since the advent of metal ships. Lake builders will continue to construct coarse freight carriers along the practical lines developed with more or less progress in the hundreds of such vessels already built, but a better class of ships in other branches of the lake trade will be in demand in the future, and the builders who encourage a higher practice than that involved in turning out the present type of freight boat will profit by such a policy.

Lake Freight Matters.

With exports from the seaboard of 40,000,000 bushels of wheat during the past eight weeks, it would seem that European countries are taking the grain in sufficient quantities to warrant an immediate movement to Atlantic ports of the wheat still remaining in Chicago elevators. Dispatches from Chicago tend to create the impression that delay is caused mainly by the refusal of the banks to provide freight charges. Some people well posted in the grain business do not believe that such is the case, however, and they declare positively that the wheat has been sold against December delivery by heavy speculators, who are back of the present inactivity in shipments. A leading authority in Cleveland for this statement is at the head of one of the largest trunk line railways of the country. If there is probability, then, of shipments of grain being delayed throughout the remainder of the season of navigation, the outlook for the vessel owners is certainly discouraging. There is little hope of the iron business developing enough improvement to render any assistance to the general freight market during the closing months of the season, as shipments are well up to sales, and with vessel owners forced now to accept part payment in paper on freight contracts, the amount of unsold ore brought down must, of necessity, be very light. The best proof of this is the action of concerns like the Lake Superior Iron Company and M. A. Hanna & Co. in placing their own boats in ordinary. The former company has just tied up four of its steel boats, and, as is well known, all of the Menominee line of six steamers have been out of commission for several days past.

The steamer W. B. Morley has been chartered for a trip with grain and mill stuff from Duluth to Kingston. She was built to go through the canal, but is a little longer than the steamers of the Vermont Central Line, and will be the largest boat ever passing through the Welland.

Capt. Alex. McDougall's Patents.*

WAR BOAT—SPECIFICATION FORMING PART OF LETTERS PATENT NO. 498,679—DATED MAY 30, 1893—APPLICATION FILED JULY 29, 1892—SERIAL NO. 441,613—NO MODEL.

The inventor says: "My present invention relates to improvements in war vessels, which are especially adapted and designed for use in the defense of harbors and coasts. The present boat possesses certain advantages of operation. Fig. 1 is a perspective view of my improved war vessel; Figs. 2 and 3 longitudinal sectional views of modified forms. Corresponding parts are designated by the same letters of reference. A is the hull of one of my improved steamboats, fully described in letters patent of the United States, dated June 3, 1890, numbered 429,468 and granted to myself. The hull of this steamboat consists of metallic plates secured to transverse ribs, so as to form a hollow shell. The bow of the boat, as described in said letters patent, is spoon-shaped, and the stern is similarly constructed, except that it is provided with a skeg, which facilitates steering. The hull is without sheer, which cheapens its construction, and the deck is curved. The particular curve of the deck which I have referred to in said patent is that of an ellipsoid, but I do not wish, of course, to be limited to this particular shape, although it poss-

Fig. 2.

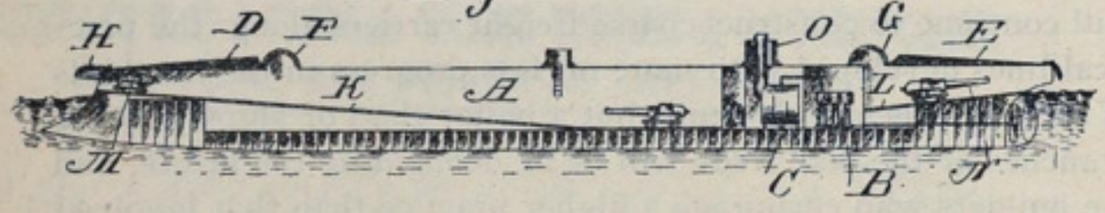


Fig. 3.

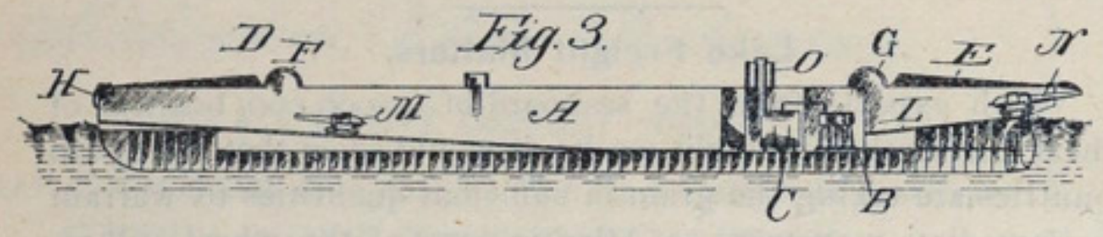
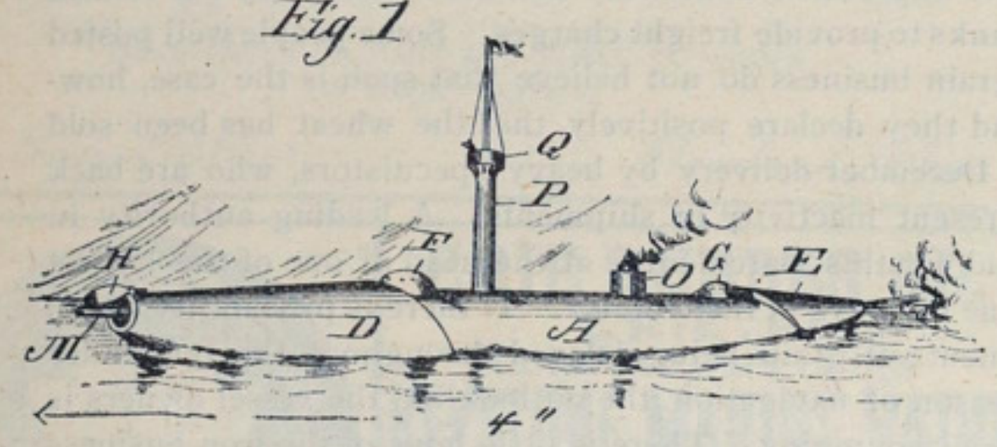


Fig. 1



esses many advantages which have been before pointed out. The bottom of the boat is rounded, although I have mentioned in said patent that it may be flat or peaked. The sides of the boat are parallel, both longitudinally and vertically, which also serves to cheapen the construction of the hull. Within the bow and stern are preferably water tanks, and the bottom part of the boat is formed into compartments. These tanks and compartments may be filled wholly or partially with water, by which the boat may be submerged to its proper load water line or trimmed. By pumping this water out of these compartments and tanks, the draft of the boat may be made very light, so that it may enter shallow waterways and pass over bars. This facility is particularly advantageous to a war vessel, as it prevents the pursuit of men-of-war of deep draught, and it will allow one of my improved war vessels to approach cities having poor harbors, which may be thought secure from the attacks of such men-of-war.

"B is an engine which is placed within the boat preferably near the central part thereof. This engine is to be of any appropriate construction, and for protection may be surrounded by coal bunkers in the usual way. This engine operates the propeller, which is placed at the stern either in the rear of the skeg or within the skeg. Two propellers may be used, one on either side of the skeg, or if it is desired to secure great speed, three propellers may be used. C is a boiler or boilers placed within the hull either in the front or the rear of the engine B. D is an auxiliary armor placed over the bow portion of the boat and E is an auxiliary armor placed over the stern portion of the boat. Both of these armors are similar in construction. Each consists of a heavy wooden or elastic backing covered with metallic plates or a steel casting either in whole or in section may be used. Each armor extends some distance below the load water line. The auxiliary armor at the bow is preferably thicker at its upper after end and the auxiliary armor at its stern is thicker at its forward end. F is a conning tower extending up from the deck in the rear of the forward auxiliary armor, and G is a conning tower extending up from the deck directly in advance of the rear auxiliary armor. By making the auxiliary armor at the bow thicker at its after part, or, in other words, by making it inclined, as I have shown, the forward conning tower will be effectively protected from the action of shot and shell. The after conning tower G will also be protected in the same way by the auxiliary armor at the stern. By making the auxiliary armor at the bow inclined, as I have shown, a very convenient bulwark is offered to enable the officers and crew to walk about the decks in safety. The extreme nose of the boat consists of a heavy hinged plate H adapted to be swung outwardly, and the stern consists of a similar hinged plate arranged the same way.

"Extending down from the bow and the stern on the inside of the boat are inclined tracks K and L, which pass into the hold. Suitable guns M and N are mounted on these tracks. These guns are loaded in the interior of the boat and are then moved up the inclined track K and L, so as to point out through the bow or stern, after which they are fired. The guns are now returned to the hold of the boat and are re-loaded. If it is desired, two tracks may be used at the bow, and two tracks at the stern, so that two guns may be used at each end. These guns are loaded and fired alternately. The proper aim of the forward gun is effected by the officer in the forward conning tower. This officer steers the boat so that it will point directly at the object which is to be fired upon. The only duty of the gunner in the interior of the hull is to effect the proper elevation. The aiming of the rear gun is effected by the officer in the rear conning tower. There may be provided an auxiliary steering apparatus in this rear conning tower, by which the officer therein may control the movements of the vessel, or he may give his instructions to the officer in the fore conning tower by means of a speaking tube or otherwise. The smoke stack from the engines passes up through the deck, and is protected by a heavy metallic turret O. P is a metal mast extending up from the deck to a proper height and carrying a crow's nest Q at its upper end. The crow's nest can be reached from the interior of the boat by means of a metallic ladder passing up through the hollow mast P. Machine guns of any appropriate construction are mounted in this crow's nest and are to be operated by a portion of the crew. The crow's nest offers a convenient point for a look-out, and men-of-war can thereby be sighted long before the hull of my improved war vessel could be seen, by reason of the fact that there is such a small portion of the hull out of water. The machine guns in the crow's nest offer an effective means for preventing boarding and these guns may also be put into use in assailing torpedo boats and for fighting in close quarters.

"In Fig. 2 I have illustrated a war vessel, provided with a ram bow, which further increases its functions in a very important regard. Such a ram bow, owing to the great strength and rigidity which is required of it, should preferably be formed in the construction of the vessel; that is to say, the original frames of the boat should be formed so as to constitute the proper shape of the bow. In this case the war vessel would be capable of effective use only as a weapon of defense, but it is to be understood that the said ram may be a distinct and separate element, which can be attached in any suitable way to the bow portion of the boat. When used as a freight carrier, and for similar purposes, the said ram is to be removed, and the original functions and advantages of the vessel are regained. The vessel shown in Fig. 3 is similar in most respects to the war boats before referred to, differing therefrom only in the particular shape of the bow. In this boat I make use of an ordinary wedge-shape or cut-away bow, instead of the spoon-shape bow of Fig. 1, or the ram bow of Fig. 2.

"What I claim as new and desire to secure by letters patent is as follows: First—An improved war vessel, consisting of a hull, substantially as described, an auxiliary armor D around the bow of the vessel and gradually increasing in thickness near the rear end, an auxiliary armor E around the stern of the vessel and

*Under this heading we will publish specifications accompanying letters patent granted to Alexander McDougall, of West Superior, Wis., since his first application for a patent on the whaleback type of vessel, May 1, 1880.

gradually increasing in thickness near its front end; a conning tower F mounted on the deck of the vessel in rear of the forward auxiliary armor and protected by the same, and another conning tower G in advance of the rear auxiliary armor and protected by the same, substantially as described. Second —An improved war vessel, consisting of a hull, substantially as described; an auxiliary armor D around the bow of the vessel and gradually increasing in thickness toward its rear end, an auxiliary armor E around the stern of the vessel and gradually increasing in thickness near its front end; the conning tower F mounted on the deck of the vessel in the rear of the forward auxiliary armor and protected by the same; another conning tower G in advance of the rear auxiliary armor and protected by the same, and a hollow mast P midway between said conning towers F and G, extending up from the deck and carrying a crow's nest Q, substantially as described. Third—An improved war vessel consisting of a hull, substantially as described, an auxiliary armor D around the bow of the vessel and gradually increasing in thickness near its rear end; an auxiliary armor E around the stern of the vessel and gradually increasing in thickness near its front end, a conning tower F mounted on the deck of the vessel in the rear of the forward auxiliary armor and protected by the same,another conning tower G in advance of the rear auxiliary armor and protected by the same, a gun M mounted within the vessel on the track K and adapted to be fired out of the bow, and a gun N mounted within the vessel on the track K and adapted to be fired out of the stern, substantially as described.

A Valuable Paper on the Canal Question.

Among the most interesting papers as yet written on the subject of a waterway from the lakes to tide water and its effect upon transportation rates is that presented to the Water Commerce Congress in Chicago, a few days ago, by George Y. Wisner of Detroit, a civil engineer who has given a great deal of study to canals in this country. Mr. Wisner favors a radical enlargement of the Erie canal, or the construction of a new canal along practically the same route. "Canada has expended $52,000,000," he says, "in constructing canals and $215,000,000 in cash and guarantees for railroads for the purpose of diverting American trade through Canadian ports, yet of the 390,000,000 bushels of grain received at the Atlantic ports of the United States and Canada in 1892, only 27,400,000 bushels including Canadian grain, was received at Montreal. The investigation made by the Senate committee of interstate commerce in 1889 shows that Canadian canals, with rebates making them practically free for St. Lawrence river freights, have had but little effect in diverting traffic from American ports. * * * It will not do to assume that Canada will soon become an integral part of the United States, for such an event is so improbable that to delay the improvement of transportation routes, with the hope of thus being able to accomplish the purpose for less money, will cripple the commercial growth of the country far in excess of anything that can be saved; besides, the surest means of inducing Canada to come into the fold is to place our commerce in such an independent condition as to have no need of the natural advantages she has to offer."

Regarding the financial aspect of the subject, Mr. Wisner says: "At the present rate of increase the receipts of grain at Atlantic ports would probably exceed 600,000,000 bushels annually before the canal could be completed. At least one-half of this amount would go direct by lake and canal, and the rate on the whole would be governed by that on the waterway. The average rate by lake and railroad for the past four years has been 8.5 cents per bushel, and allowing 1.5 cents for higher rate of winter traffic, the net decrease would be at least four cents per bushel, or $24,000,000 for yearly shipments of grain, while that on merchandise and other freight would be fully as much more, making a total of $48,000,000. If the work should be undertaken by the government, money could be obtained for the project at 3 per cent., at which rate the above annual decrease in cost of transportation would be the interest on $1,600,000,000. The canal can undoubtedly be constructed for less than $200,000,000, which at 4 per cent. for interest and maintenance would leave a net balance of $40,000,000 annually in favor of the project. The benefits to be derived should not, however, be measured by this amount, for the home prices of manufactures and agricultural products are those which they bring on foreign markets, less the cost of transportation; and consequently any decrease in the cost of the transportation adds a like amount to the value of all productions used for domestic consumption."

In General.

Probably the largest contract for small pumps ever made in this country is that of Henry R. Worthington with the builders of the two new American Line ships. The order amounts to about $160,000.

Mrs. Lucy C. Carnegie of Pittsburg, sister-in-law of Andrew Carnegie, has given a contract to the Maryland Steel Company for a steel steam yacht. The yacht will be 101 feet on water line, 119 feet over all, 20 feet beam and 10 feet 3 inches depth of hold. The engine will be compound. The boat will be built for comfort.

On 330 tons of coal a day, the horse power maintained in the steamers New York and Paris is about 18,000. The average coal consumption of boats like the New York, Paris and Majestic is about 1.75 pounds per hour per horse power. The Campania's engines are supposed to indicate about 30,000 horse power, and the consumption of coal is said to be 400 tons per day. These figures are not exact, of course, but in any case it is probable that the new Cunarder burns less coal per horse power per hour than any of the other greyhounds.

The Marie Henrietta, a new paddle steamer, built at Hoboken, near Antwerp, for the Belgian government, and destined for the Ostend-Dover service, is the fastest paddle steamer afloat. In four runs over the measured mile on the Clyde she maintained a mean speed of 22.2 knots. The steam pressure was 7.8 atmospheres and the revolutions fifty-three per minute. The mean speed is fractionally better than that of a sister boat, Leopold II., built by Messrs. Denny of Dumbarton, so that the palm of speed for this type of boat has passed from the scientific Scotch yard to the continent. The builders get a premium of about $20,000.

The Rappahannock, the first of the three large steamers which are building for the recently formed Chesapeake and Ohio Company (Limited) of London, and which are to run in connection with the Chesapeake & Ohio railway, was launched a few days ago by Messrs. A. Stephen & Sons of Lighthouse, England. The vessel, which is to initiate a new cattle and general service between Newport News, London and Liverpool, is about 4,000 tons gross, 370 feet in length, 44 feet in breadth, and 31½ feet in depth, and her deadweight carrying capacity is between 5,000 and 6,000 tons. She is fitted with engines of the triple-expansion type, the cylinders being 28, 46, and 75 inches diameter by 54-inch stroke.

The keel sloop Colonia, one of the four American competitors for the honor of meeting the crack British yacht Valkyrie, has a new hollow boom which is quite a creation. It is really a barrel 97 feet 6 inches long by 22 inches diameter at the middle, tapering to 11 inches at the ends. The skin is in two thicknesses, and there is, of course, nothing but the skin, except the moulds or bulkheads of thin stuff, spaced some 8 feet apart, on which it is built. The inside layer of the skin is of matched spruce, in long lengths, 1¼ inches thick, the joints laid in lime and cheese cement, and the planks screwed to the moulds. After this layer was on, the spar was rounded up, and the outer layer of 1¼ inch Oregon pine, also matched, was put on and screwed into the inner planking. Each of the outer planks is hollowed on the inside, and they break seams with the inner ones. It is expected to be very stiff and decidedly lighter than a solid stick. This boat is the result of the order of Archibald Rogers to the Herreshoffs to "build me the fastest yacht you can."

The Cleveland & Buffalo Transit Company announces that on Wednesday Sept. 6 a special cheap excursion will be run from Cleveland to Niagara Falls and Toronto. The round trip rate to the falls will be $3, allowing an entire day at Buffalo and the falls, and the round trip rate to Toronto $5, tickets good returning until Sept. 11, giving five days to visit the Industrial Fair.

Chicago's Hydrographic Office—Important Libel.

WESTERN OFFICE, MARINE REVIEW,
No. 701 Phoenix Building, CHICAGO, Ill., Aug. 24.

The sooner the captains of lake vessels begin to patronize the Hydrographic office here, and call upon George P. Blow, who is in charge of this branch, every time they are in port, the sooner will they learn the advantages to be derived from the service. Marine men have found the hydrographic offices established in New York and other cities on the coast of great value to them, but the benefit is not confined to marine men, for Mr. Blow says that when he was in charge of the New York office, it became a bureau of general information, and questions were daily put to him and his assistants on an endless variety of subjects. Mr. Blow and his assistants became recognized by the newspaper men of New York as authorities on naval matters, and during any disturbance or storm their office was constantly besieged with anxious seekers after information. Admiralty lawyers came to the office for witnesses in their suits, knowing that nowhere else could important data be obtained. The facts obtainable were often of great value to insurance men. Shippers sent for reports on derelicts, ice, etc., and captains rarely left port without visiting the office to obtain information of fogs, ice bergs, wrecks, shoals, etc. There the captain could learn about the buoys, lights and beacons which he would meet on the voyage. From the hydrographic office information is furnished to other branches of the government, such as the light-house board and the bureau of intelligence. The best part of this service is that all this information is furnished free of charge, and the only thing that is asked in return is that the receiver will reciprocate when he sees any unusual phenomena, buoys adrift, derelicts, etc., or is able to give information of any kind that he thinks his brother navigator would like to know. The office is located at No. 1621 Masonic Temple. In the books of the service, which are kept at every office, is to be found a description of every port in the world. This includes a good description of the harbor, the way of entering shoal and deep water, tides, supplies and all information that a sailor would want to know, put in a form where he can get at the facts without trouble. The usual feeling against naval officers which merchant captains have need not be felt in this case, for Mr. Blow holds a captain's papers on the oceans and has served in the merchant service. He has held these credentials for five years. Among other things which he intends to do, is to publish a pilot chart of the lakes, like the valuable ones published of the oceans. On top of the high building will be placed a time ball, which will drop at the stroke of noon.

A libel was forwarded Monday to the United States marshal at Detroit tying up the steamer Newsboy for a bill of $200 due the H. Channon Company, ship chandlers, for supplies furnished the steamer while running in world's fair traffic last spring. The Newsboy was one of the boats, which were chartered by irresponsible companies, to carry people to Jackson park, and which ran away from a large number of bills when the companies collapsed. These unpaid bills aggregate over $20,000, and were incurred on the belief that they were by marine law liens upon the boats themselves. So confident were the creditors that such was the case that they did not make any serious effort to libel the boats until they had suddenly sailed away. To their surprise the plea has been set up that the creditors must look to the defunct wildcat companies for their pay and not to the boats. A test case was made up, and was taken to Detroit on account of the United States district court there being more speedy in acting on admiralty cases than the district court here. Whatever the decision of the lower courts may be, the case will be carried to the court of appeals for the final hearing. The point at issue is one of the most important ever raised in the marine business on the lakes. If the decision is that boats chartered are not subject to liens for coal, provisions and repairs marine men say the door will be thrown wide open to wholesale fraud. It will be possible by chartering boats to irresponsible people to pocket the entire earnings and pay none of the bills. The case has aroused much interest in marine circles.

Bills Introduced in Congress.

Mr. W. P. Frye introduced in the United States Senate during the past week the following bills relating to the merchant marine, which were referred to the committee on commerce, of which Mr. Frye is a member:

495—To establish a marine board for the advancement of the interests of the merchant marine.

496—Admitting to American registry vessels built in the United States and owned by citizens thereof residing abroad, and for other purposes.

497—To amend "an act to amend section 4,400, of Title LII, of the revised statutes of the United States, concerning the regulation of steam vessels," approved August 7, 1882; and also to amend section 4,414, Title LII, of the revised statutes of the United States, "Regulation of steam vessels."

507—Providing for the collection of fees for furnishing certificates of title to vessels.

508—Exempting American coastwise sailing vessels piloted by their licensed masters or by a United States pilot from the obligation to pay state pilots for services not rendered.

509—To amend an act entitled "an act to amend section 4178, revised statutes, in relation to the marking of vessels names at bow and stern, and also to provide for marking the draft," approved February 21, 1891.

510—To protect the wages of seamen.

511—Providing for the establishment and enforcement of rules and regulations for the use and navigation of United States canals and similar works of navigation, and for other purposes.

586—To provide communication from light-ships and outlying light-houses to the shore.

587—To amend an act entitled "an act to regulate the carriage of passengers by sea," approved August 2, 1882.

The foregoing bills are nearly all duplicates of measures that were not given full consideration in the last Congress, on account of the late date of their introduction, but it is probable that they will be pushed in the present Congress, as Mr. Frye, through the influence attached to his position as a member of the Senate commerce committee, will have ample opportunity to give them special attention. By far the most important of these measures is that which contemplates the establishment of a marine board. Through this board which is to be made up of one of the assistant secretaries of the treasury, who is to be ex-officio chairman, and the chairman of the light-house board, supervising inspector-general of steam vessels, supervising surgeon-general of the marine hospital service, general superintendent of the life saving service, commissioner of navigation, superintendent of the coast and geoditic survey, chief hydrographer of the navy and chief of the division of revenue marine, it is proposed to facilitate work in the treasury department, by bringing together in regular quarterly meetings the heads of departments who will have general supervision of all laws affecting the merchant marine. This bill was very favorably received when brought up a year ago.

Another important measure, Senate bill No. 497, seeks to adjust the salaries of the local steamboat inspectors and assistants, when the latter are allowed, in accordance with the number of vessels inspected in the different districts. An adjustment of this kind should have been made long ago, and the bill would have passed the last Congress if it were not for the political wire pulling qualities of some supervising and local inspectors, who should have no place in the service.

As had been expected, there is evidently some hitch in the law of Feb. 1, 1891, providing for the marking of vessels' names upon each bow and upon the stern, together with the name of the home port on the stern, and the new bill, which differs only slightly with the present wording of the law, is undoubtedly intended to make it plain that the names must appear in this way on all merchant vessels of the United States, whether steam or sail.

In 1886 the fees of customs officers were abolished in many instances. Previous to that year the vessel owner wanting a certificate in the nature of an abstract of title to a vessel, paid $1 for such an abstract, taken from the record of bills of sale, mortgages, etc. Since this fee was abolished such abstracts should be furnished free of charge, but considerable labor is involved in making up the certificates, and vessel owners have usually paid the clerks in the different districts for their trouble in work of this kind. Mr. Frye's bill, No. 507, provides now for the collection of a regular fee of $1 in such cases.

The bill numbered 511 aims to give to the secretary of war the right to make and enforce rules similar to those now in force in the St. Mary's and St. Clair canals on the lakes for all canals and similar works of navigation throughout the country.

Other bills introduced in the Senate during the week and referred to the committee on commerce were the following by Senator W. C. Squire:

606—Establishing a ship channel in the Columbia river near Vancouver, Wash.

607—To increase the number of light-house districts, and for other purposes.

608—To amend section 4,414 of the Revised Statutes relating to inspectors of hulls and boilers.

Official Numbers and Tonnage.

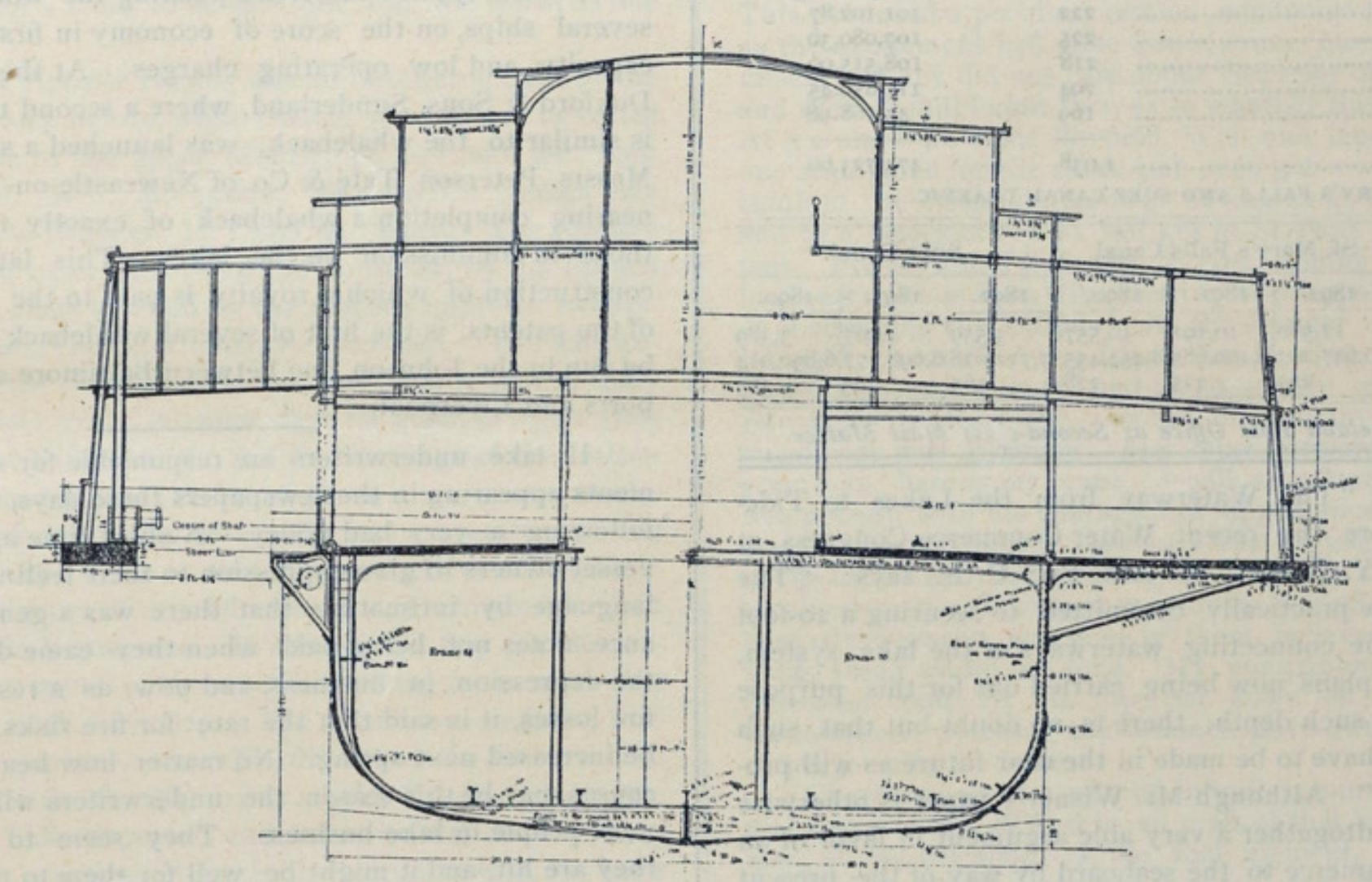
The bureau of navigation, E. C. O'Brien commissioner, assigned during the past week official numbers to the following lake vessels and also passed upon returns as to their tonnage: Steam—City of Mackinac, Detroit, Mich., 1,749.65 tons gross, 1,277.86 net, No. 126,988; Catherine C., Chicago, Ill., 82.73 tons gross, 58.41 net, No. 126,989. Sail—George B. Owen, Chicago, Ill., 744.16 tons gross, 706.96 net, No. 89,264; Clara, Chicago, Ill., 8.24 tons gross, 7.83 net, No. 126,058.

Paddle Steamer City of Mackinac.

Within the past five years the Detroit Dry Dock Company has built for the Detroit & Cleveland Steam Navigation Company four side-wheel steamers, the last of which went into commission during the past week. Two of these steamers, the City of Cleveland and City of Detroit, have been on the route between Cleveland and Detroit for some time past, while two others, the City of Alpena and City of Mackinac, built since August of last year, have just entered upon their first season's work between Detroit and Mackinac island at the head of Lake Huron. These boats, which compare very favorably with the famous Long Island sound steamers, and which are practically duplicates, make up the most costly line of passenger ships on the lakes, representing an aggregate value of a full million of dollars. The cross-sectional view of hull printed herewith will give a technical reader a general idea of the form of hull, and a short description of the City of Mackinac, the last of the fleet to go into commission, may prove interesting.

The dimensions of this latest boat are: Length of keel, 264 feet; length over all, 280 feet; breadth of hull, 38 feet; breadth of beam over all, 70 feet; moulded depth of hull, 15 feet. There are seven water tight compartments in the hull and the total weight of steel entering into construction was 675 tons. There is but one large oval stack, 7½ feet one way and 5½ feet the other, and one pole spar forward. The engines, built by the Fletcher Company of Hoboken, N. J., are of the beam type, the diameter of the low pressure cylinder being 66 inches and that of the high pressure 42 inches, with 11 feet stroke. Two double ended boilers are allowed 130 pounds pressure and are fitted with the Howden system of forced draft.

The lower or main deck is devoted largely to space for freight, while on the upper deck are the main saloons or cabins forward and aft of the engine space, which are surrounded by two tiers of state rooms extending outwardly over the guards and numbering in all 140. The cabins are, of course, luxuriously furnished, in keeping with the general high cost of construction, and each state room contains a double lower and single upper berth with marble topped wash stands and incandescent lights, the lighting equipment including two independent plants of 300 16-candle power lamps each. Ladies and gentlemen's lavaratories with baths, four parlors with sleeping rooms attached, which contain beds instead of berths, and smoking rooms are other desirable features on the upper deck, while a culinary department and an elegant dining room with seating capacity for 110 people are located below the main deck. Although in the hold, this dining room is well lighted by means of dead-lights under the guards, and good ventilation is secured by means of a system of pipes, through which cool air is introduced after passing over ice.



CROSS SECTIONAL VIEW—TYPE OF LAKE PADDLE STEAMER.

The Coming Yacht Races.

Here is a sample of the general comment in newspapers throughout the country regarding the America's cup contests: "Four yachts have been built in the United States this year to defend the America's cup against the latest British challenger, Lord Dunraven's new cutter Valkyrie. The contests will attract more attention than any other event of the year in yachting circles, and among the people of this country and England in general it is evident that we are in greater danger of losing this famous trophy, long held against all comers, than ever before, unless one of the four untried yachts which have been built to defend it shall prove a decidedly better boat than the Navahoe. It is probable that a champion can be found to meet the Valkyrie in New York bay which will be harder to beat than Mr. Carroll's sloop, but no decided superiority can be counted on. It follows, therefore, that Lord Dunraven's cutter, being faster than the Navahoe, is likely to give our best yacht a series of desperately contested and very close races, which will rouse the enthusiasm of yachtsmen and of the whole country to the highest pitch. There is rare fun ahead for the lovers of one of the noblest of sports."

A Most Valuable Technical Work.

Readers of the REVIEW who desire copies of the official proceedings of the branch devoted to marine and naval engineering and naval architecture in the recent Engineering Congress at Chicago, should subscribe for them at once. Orders sent to the REVIEW will receive careful attention. The bound volume of the proceedings, which will contain about 1,500 pages, including about 200 engravings, will be sold only on subscription, at $10, and should be ordered in advance of publication. As the papers contributed to the congress—about forty in number—are from the highest authorities on marine engineering and naval architecture in all parts of the world, there is no doubt of the work being the most valuable of its kind ever published.

MARINE REVIEW.

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The books of the United States treasury department contain the names of 3,657 vessels, of 1,183,582.55 gross tons register in the lake trade. The lakes have more steam vessels of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of steam vessels of 1,000 to 2,500 tons on the lakes on June 30, 1892, was 321 and their aggregate gross tonnage 534,490.27; in all other parts of the country the number of this class of vessels was, on the same date, 217 and their gross tonnage 321,784.6. The classification of the entire lake fleet is as follows:

Class.	Number.	Gross Tonnage.
Steam vessels	1,631	763,063.32
Sailing vessels	1,226	319,617.61
Canal boats	731	75,580 50
Barges	69	25,321.12
Total	3,657	1,183,582.55

Tonnage built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	Number.	Net Tonnage.
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
1891	204	111,856.45
1892	169	45,168.98
Total	1,038	473,723.60

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

	St. Mary's Falls Canal.			Suez Canal.		
	1892.	1891.	1890.	1892.	1891.	1890.
No. vessel passages	12,580	10,191	10,557	3,559	4,207	3,389
Ton'ge, net regist'd	10,647,203	8,400,685	8,454,435	7,712,028	8,698,777	6,890,014
Days of navigation..	223	225	228	365	365	365

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IN a paper on "The Waterway from the Lakes to Tide-Water," read before the recent Water Commerce Congress at Chicago, George Y. Wisner, M. Am. Soc. C. E., says: "The government is now practically committed to securing a 20-foot channel through the connecting waterways of the lake system, and although the plans now being carried out for this purpose will not give any such depth, there is no doubt but that such modifications will have to be made in the near future as will produce such a result." Although Mr. Wisner's paper is otherwise very clear, and is altogether a very able argument in favor of an outlet for lake commerce to the seaboard by way of the present Erie canal route, he fails to go into detail regarding the charge that the plans now being carried out by the war department for a 20-foot channel throughout the lakes will not give such depth. Mr. Wisner, who lives at Detroit, is very close to the scene of operations under the direction of Gen. Poe, and if he is hinting at anything radically wrong it might be well for the vessel interests to listen to what he has to say. He has been in charge of important works on the Mississippi, but is known to be opposed to the methods of the army engineer corps. It is not expected that the new deep channel when completed will permit of vessels loading to full 20 feet, any more than a channel of 16 feet will at present warrant the vessel owner in loading to the depth shown by sounding, but Mr. Wisner seems to hint at something more important than this condition, which is generally accepted.

LAKE vessel owners have every reason to be satisfied with committees in the House of Representatives, as announced a few days ago by Speaker Crisp. Mr. Blanchard of Louisiana retains the chairmanship of the committee on rivers and harbors. The changes are Stewart of Texas, Haynes of Ohio, Byrnes of Missouri and Quackenbush of New York, not re-elected, and Weadock of Michigan and Stone of Pennsylvania, dropped from the committee. The new members are Barnes of Wisconsin, McCulloch of Arkansas, Caminetti of California, Causey of Delaware and Alderson of West Virginia, Democrats, and Grosvenor of Ohio, Reyburn of Pennsylvania and Hooker of New York, Republicans. Mr. Weadock of Michigan, one of the members dropped from a lake district, was not in favor of the 20-foot channel work. The committee on commerce, which will pass upon aids to navigation, is practically unchanged, Messrs. Brickner of Wisconsin and Houk of Ohio being among the active members who worked hard in the last Congress for an increase in the number of lights and fog signals on the lakes.

As a result of having made no season contracts for its very large fleet of whaleback vessels on the lakes, the American Steel Barge Company has been forced to tie up some of these craft and suffer long delays in port with such of the fleet as are not tied up, just as owners of other vessels have been doing for several weeks past. On account of the general depression in finances, the Messabi iron mines controlled by the owners of the whalebacks have shipped only a few thousand tons of ore, and there is a big loss through this source, from which the barge company had expected an extensive business. Still, the English builders of the same type of vessel are pushing the work of constructing several ships, on the score of economy in first cost, increase of capacity and low operating charges. At the yard of William Doxford & Sons, Sunderland, where a second turret ship, which is similar to the whaleback, was launched a short time ago for Messrs. Peterson, Tate & Co. of Newcastle-on-Tyne, there is also nearing completion a whaleback of exactly the same type as those in commission on the lakes. This latter vessel, for the construction of which a royalty is paid to the American owners of the patents, is the first of several whaleback cargo steamers to be run in the Johnson line between Baltimore and other Atlantic ports and Liverpool.

IF lake underwriters are responsible for some of the statements appearing in the newspapers these days, they are certainly following a very bad policy. A short time ago they prompted vessel owners to give expression to their feelings in very strong language by intimating that there was a general fear of insurance notes not being paid when they came due, on account of the depression in business, and now, as a result of a few small fire losses, it is said that the rate for fire risks will undoubtedly be increased next spring. No matter how heavy losses from all causes may be this season, the underwriters will fare better than most people in lake business. They seem to be crying before they are hit, and it might be well for them to remember that, as margins must come down in everything pertaining to lake commerce in the future, and as new classification societies are working their way into lake insurance business, they may find in maintaining rates in the future more trouble than they have experienced in the past.

THE local inspectors of steam vessels in the Duluth district will not be doing their full duty if they do not investigate very thoroughly the disgraceful performance, a few days ago, of the competing tugs Fiske and Carrington, while trying to secure a tow. The spectacle of harbor tugs deliberately running into each other is an open defiance of the steamboat laws that would seem to indicate little fear of these laws being enforced.

SECRETARY KEEP of the Lake Carriers' Association is right in the conclusion that the present depression in lake traffic is due largely to over-production of vessel tonnage. How could it be otherwise when it is known that since 1886 the new tonnage has not fallen below 50,000 tons a year and has exceeded 100,000 tons.

The Richelieu & Ontario Navigation Company will run a new line of steamers between Montreal, Hamilton and intermediate points. The new steamer Magnet, now building at Sorel, Que., will be put on the route when finished, on or about Sept. 1.

A Week in the Wilds of Lake Superior.

[*By John Richards, Editor of Industry, San Francisco.*]

One hundred miles or so east of Superior and Duluth, near the head of Lake Superior, there is a peninsula extending into the lake, not so bold or long as Keweenaw, still farther east, which projects out like the pole of a wagon into the vast lake, and on which are Hancock, Houghton and the great copper mines. This upper peninsula has been, in ages past, frayed and split at the end into now detached portions called the Apostle islands, so named because there was a dozen of them, also because the first explorations there by white men were made by the old French fathers who always hunted up some kind of a sacred or church name for all kinds of places, whenever possible. In the little bay at the mainland abreast the principle Apostle islands is Bayfield, Wis., now, I am told, an enterprising town with a population numbering some thousands, but at the date of this narrative, 1868, only a hamlet with a kind of summer hotel, some Indian huts, camper's cabins and a goverument land agent, the whole not exceeding a hundred people, perhaps not fifty. Senator Rice of Minnesota had a curious log house there, set up on posts 12 feet or more from the ground, where he came and lived in summer for a time, to be shut out from the world as one might say.

On one of the Apostle islands was an old church built by the fathers just a century before, while ontheir way, it may be called from lower Canada to the upper Mississippi, and had left their names in La Salle, Joliet, Marquette; also French names like Des Moines, Prairie Duchien, La Croix and more. The country has therefore been twice discovered, so to speak, by the French fathers about 200 years ago and by the modern improver twenty-five years ago, when classic Duluth was founded. The Chippewas (Ojibways) were there at first and are there now, but sadly altered in these later years, in some ways for good, in other ways for bad. They are Indians still. All the blessings of civilization as we call it, pressed upon them by all the arts known to proselytism for a hundred years past have only in part erased the old instincts, customs and mode of life, as our narrative will show.

In 1868 a company of a hundred or more excursionists went up the lakes on the Keewenaw. It was her last trip for the season. The journey is one of the most interesting for tourists that exists anywhere in this country. The excursions begin at Buffalo and end at Superior. 1,000 miles distant by the water course through Lake Erie the St. Clair river, Lake Huron, Sault Ste. Marie canal into Lake Superior, and out to its very apex, a sharp tongue of water reaching away into the northwest, as Lake Michigan does at Chicago. The trip we name was in the later part of September, or the first of October, after which there is danger of storms, cold weather and ice, ending the excursion business. The Portage, as it is called, an estuary that reaches into and nearly across the Keewenaw peninsula and forms the only waterway to the copper region, is the first place closed with ice, and when these places were cut out at that day there was not business enough in the upper lake after the first of October to justify a large steamer going up there. The Keewenaw was a large paddle steamer with a beam engine, and the usual amount of "top hamper," a full saloon above, a second deck, with a "Texas" still above, very like a river steamer, but immensely stronger. We had a fine journey. The owner of the boat, Capt. Ward, and other people of prominence in the lake region were on board, and no pains were spared to make it an excursion trip. The weather was fine all the way until we entered the bight of Lake Superior and began heading in to Superior city, where we met a gale of wind.

It was a new experience to most of the passengers. The spray rose in clouds over the bow of the steamer, and the jar and concussion seemed dangerous. The wind drove the water out of the harbor at Superior, where there was barely depth enough to enter in calm weather, and when about ten miles from the harbor the Keewenaw came down flat on the sand, and shook up every joint in her framing. The shock was terrific. The skipper called down to the mate to shift the chain boxes to port, as well as all movable weights, shouted to the steward to call the passengers to windward and then flew up to the roof to wear the ship and turn her in the seas. I clambered up after the captain to see what would occur, he saw me and said "keep below." I pretended not to hear and held my ground. The boat began to swing, and when the wind caught her on the port side and she fell into the trough of the seas, I was sure she was gone. The angle of the roof was such that I would at once have slid off in the sea if it had not been for a projecting stove pipe which furnished a mooring. She went round, however, and in five minutes was scudding before the wind on an even keel. I went down below into the cabin, and there was chaos of all things animate and inanimate. The steward declared with profanity there was not a whole dish on board. The chairs were piled up against the leeward bulkhead, and passengers, such as were not in hysterics or hurt, were running about nearly distracted. I have since then been buffeted in the English channel, shook up in the German ocean, pounded in the Baltic sea, and seen a mid-winter hurricane in the North Atlantic, but never have seen cabin hamper so nearly smashed to pieces as on this occasion.

At least one-half of our passengers were booked to Superior to cross from there by stage to St. Paul, 200 miles between the lake and the Mississippi, but this disappointment was not thought of then. We ran back about fifty miles, and then stood in for the Apostle islands with the wind on the after quarter. This produced a peculiar motion conducive to seasickness, and as the excitement had gone down, every one not a sailor was in misery. They did not care about Superior or any other place, and seemed indifferent then as to whether the boat sank or not. At 5 o'clock we made Bayfield, Wis., and landed there. Everyone scampered for the shore and soon got over *mal de mer*, to think of the disappointment of having to go back to Marquette, and by a long journey by rail get to St. Paul, or else give up the trip. For myself, I had sent a gun, fishing tackle and some business matters from Cincinnati to Minneapolis, and had no idea of abandoning the journey. As the steamer was rounding into Bayfield, I remarked to a friend that if someone would join me, I would go ashore there, and in some way make my way back 100 miles to Superior. A tall, fine-looking young man who stood near was listening. He came forward and said, "I am your man; here is my card. I will stop here if you say so." I was pleased with his courage and appearance, and the bargain was at once concluded. We took our baggage ashore and went to the little hotel, the passengers laughing at us and bantering us about such a ridiculous venture as stopping there off the last boat of the season, and none of them believed that such a foolhardy thing would be done. My companion, Mr. Charlton, a Canadian, coolly lit his pipe, sat down on the wharf, and we waited there, watching the steamer move away, swing, and start on her journey for home.

Charlton proved a man of infinite resources and "grit." He was a woodsman, skilled in all craft of that kind; and I a waterman, all my life about or on that element. I proposed a boat and return to Superior. "Boat it is," said he, "I am ready for anything." Next morning, after a rest, we scoured the little town and found a boatman who said he would go to Superior if we would help him "handle," and the weather bid fair. We informed the hotel proprietor of our intention, which called out remarks about as follows:

"Go to Superior in that boat! You are crazy. A 50-ton schooner could not do it. Why, its blowing forty miles an hour outside the cape, and will be till next spring. There are no harbors you could find and the wind is off-shore all the way after you round the point. You had better buy some grave stones and be buried here on land, dry and respectable."

This settled the boat scheme. The host was an old sailor and understood the matter fully. We gave up the idea. That evening, after supper, Charlton went out and made the acquaintance of the United States land agent, coming back to the hotel about 9 o'clock for some wine and a box of cigars. He returned again about 12 o'clock, to say the agent had agreed to let us take his surveying wagon across to St. Paul, or to Sunrise, on the St. Croix river, from where we could reach St. Paul without difficulty. He informed Charlton there was nothing but a trail, perhaps no bridges, and no one crossed there except an Indian, twice a month, with the mail carried in a package on the top of his head. The distance was two hundred miles through an unbroken forest, with only an Indian station here and there, a day's journey apart, where the "mail" camped, but we decided to take this route and began preparations accordingly.

[*To be Continued.*]

Around the Lakes.

Buffalo coal shipments last week amounted to only 56,610 tons.

Lord Dunraven's clipper Valkyrie, challenger for the American cup, is on her way to this country.

The American Shipmasters' Association of New York, publishers of the Record of American and Foreign Shipping, classed last week the American barks C. R. R. of N. J. No. 10, American three-masted schooner William Frederick and British schooner Muriel.

W. F. Durand, principal of the graduate school of marine engineering and naval architecture at Cornell university, stopped over at Cleveland on his way east from the World's Columbian Exposition, and made the trip to Escanaba and return on one of the big steel ore carriers.

Mr. William F. Doran, who represents Henry R. Worthington in Chicago, was in Cleveland a few days ago on his return from an eastern trip. Mr. Doran has made many friends among engineers in the west since taking charge of the Worthington pump business in Chicago.

The steamer Ogemaw, which foundered off Burnt bluff, Green bay, in December, 1891, has been raised by the Murphy Wrecking Company and taken to shallow water. The wreck was in 65 feet of water. Chains were got under it last fall, but rough weather caused a suspension of work.

If the owners of the steamers that were chartered to the defunct world's fair steamboat companies are compelled to pay as a result of the suit brought by Channon & Co. of Chicago for supplies furnished to the boats while they were doing a losing business between the Chicago lake front and the fair, they will be more careful in future about making such charters. The owner who leases his vessel for service of this kind can not be too careful in selecting the right kind of a captain to look after his interests.

A new apparatus termed the telephote and intended for signaling at sea by night has been brought out by an engineer resident at Vienna. There is an aluminum mast from 10 to 30 feet high, a battery or dynamo, a cable of electric wire, and a transmitter key board of 37 keys. On the mast are arranged 106 incandescent lamps, which can be manipulated to form the signs of the Morse alphabet. Seventy-two letters a minute, it is stated, can be shown on the telephote, clearly visible three miles in daylight and ten miles at night.

Small hammocks, alike to those used of late in the berths of sleeping cars as a receptacle for clothing, have been introduced into the upper berths of the new steamer City of Mackinac, which has just gone into commission on the Detroit and Cleveland Steam Navigation Company's Lake Huron division. With a liberal wall space in the state rooms of most steamboats for hooks on which to hang clothing, there is not as much need on a boat for the hammocks as there is in the crowded railway car, but they will prove useful in many cases, and the scheme will undoubtedly be adopted by other steamboat lines.

Iron Ore Shipments.

Shipments of iron ore from Two Harbors up to and including Wednesday, the 16th inst., aggregated 571,646 tons, were divided as follows: Chandler, 281,213 tons; Minnesota, 237,520; Zenith, 1,991; Cincinnati, 9,916; Canton, 21,449; Franklin, 18,357; Hale, 1,200. Shipments of Gogebic range mines through Ashland up to and including Saturday, the 12th, foot up 743,627 tons, divided among the different mines as follows: Ashland, 26,465 tons; Aurora, 115,091; Colby No. 2, 28,594; Tilden, 68,807; Germania, 4,975; Iron Belt, 7,544; Montreal, south vein, 1,347; Montreal, north vein, 25,850; Brotherton, 14,643; Comet, 5,035: Eureka, 20,867; Careys, 31,166; Newport, 66,293; Norrie, 146,658; East Norrie, 64,649; Pabst, 83,353; Jack Pot, 1,651; Davis, 9,740; Sunday Lake, 17,525.

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Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Aug. 19, 1893:

	Wheat, bu.	Corn, bu.
Chicago	18,293,000	1,154,000
Duluth	3,265,000	.....
Milwaukee	957,000	.....
Detroit	963,000	3,000
Toledo	1,330,000	76,000
Buffalo	1,445,000	303,000
Total	26,253,000	1,536,000

At the points named there is a net decrease for the week of 516,000 bushels of wheat and 430,000 bushels of corn.

Ashtabula Range Light.

The light-house board gives notice that on or about Sept. 15 three fixed lights, two red and one white, arranged vertically 4 feet apart, with the white light in the middle, will be shown from lens lanterns suspended from a triangular, pyramidal, skeleton iron tower, located near the shore end of the west pier, and about 1,300 feet from its outer end, entrance to Ashtabula harbor, Lake Erie. The lights form a range with the light on the outer end of the pier, on a line with the direction of the piers. The middle, or white, light is about 48 feet above the mean level of the lake.

Preparing for Northwestern Grain.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Aug. 24.—The transportation companies are expecting that the greater portion of the new wheat crop of Manitoba and the northwest territory will reach the sea via Kingston this year, instead of by way of Buffalo as was the case last year, and it is hoped that the facilities for trans-shipment will be made sufficiently complete and satisfactory to ensure the permanency of the route. When this crop begins to move, the necessity for a stationary elevator here will certainly become evident. So far this year the transportation companies have handled over 13,000,000 bushels of grain, the largest in any one season since their formation, but the work has been attended by trouble and delay, which will be increased if a large portion of the northwestern grain comes this way, and which can only be remedied by private enterprise in connection with the elevator question. Here, as in many other places, the men most interested want governmental assistance and the fishing for it is a waste of time and energy. With a fine elevator here complaints would vanish, business increase, owners of grain would seek this route and general satisfaction would result all around. This year the bills of lading are made out either for Kingston or Ogdensburg, and not a few vessels run down the river and discharge, thus avoiding delay. This proceedure takes away any responsibility for demurrage, and the transportation companies very clearly state they will not pay one dollar on that score. The Lake Ontario coal trade is over and vessels are going into ordinary. There is nothing else to carry. The McKinley bill killed the fall barley trade. Some of the vessels, it is said, will be chartered by the transportation companies to be used here as receptacles for grain, so that the delays to upper lake craft will be reduced to a minimum. The tow bills and the expense of handling the schooners would be too great to have them carry the cargoes to Montreal.

Without Much Foundation.

A dispatch from Ashland says: "Government officials have made the startling discovery that Chequemagon point, which is a natural breakwater for Chequemagon bay has been wearing away. One cut has washed through 400 feet long. An appropriation of $410,000, made for just such an emergency, will be expended in repairing the break. It is estimated that this natural breakwater is worth $5,000,000 to the government. It shields the harbors of Ashland, Washburn, and Bayfield. Inquiry at Gen. Poe's office in Detroit found that officer absent on a visit to Lake Superior, but the officials in the office had heard nothing about the alleged washing away of Chequemagon point, and were not disposed to attach much importance to the report."

Neither is it probable that people outside of Gen. Poe's office will attach much importance to the report, and anyhow Gen. Poe has nothing to do with the breakwater work now going on near Chequemagon point. The point of land referred to has withstood the storms of many years and it is not probable that it will be swept away in a hurry.

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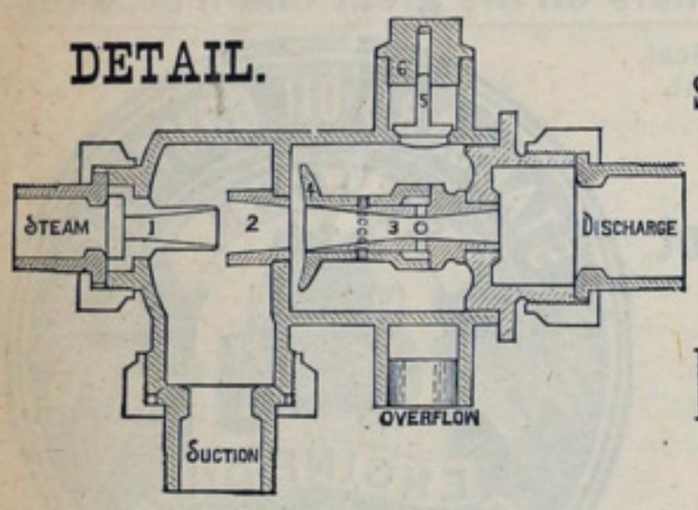

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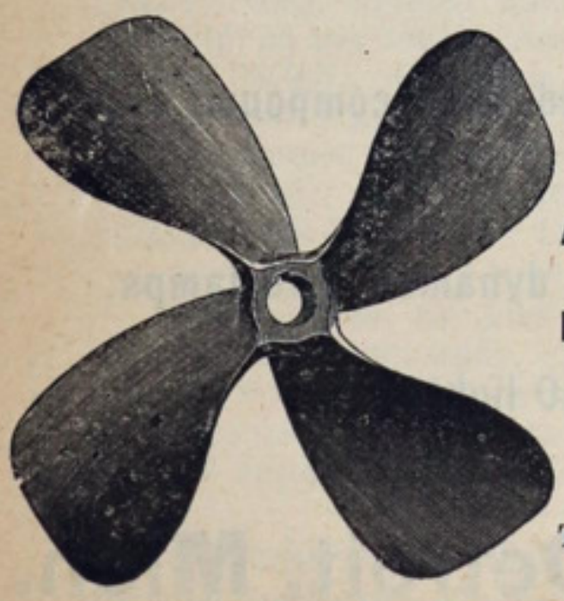

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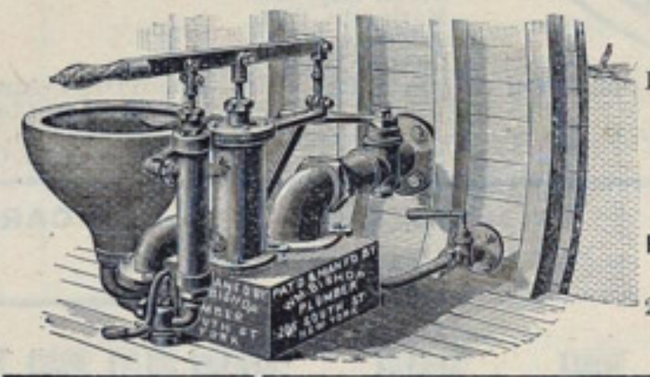

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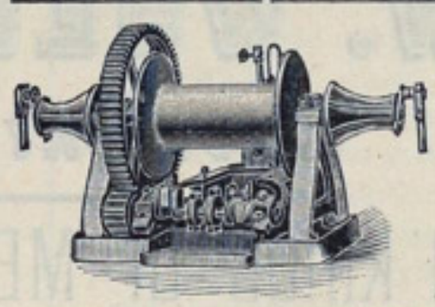

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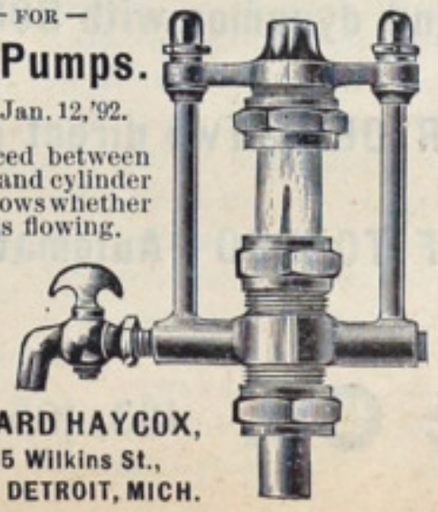

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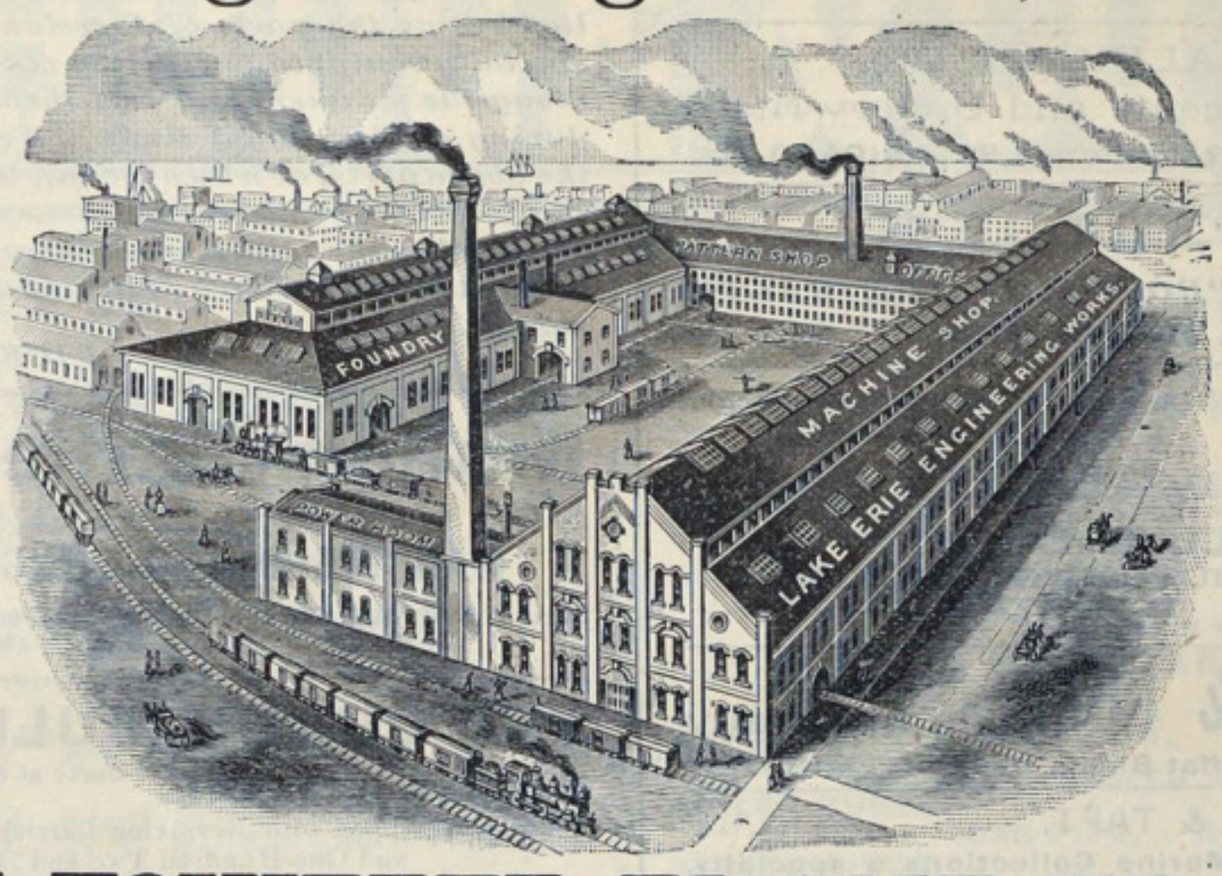

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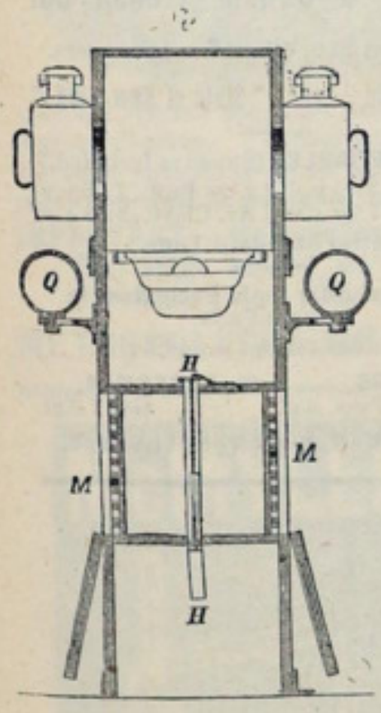

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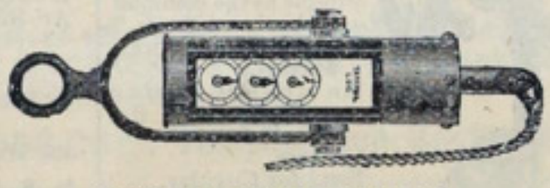

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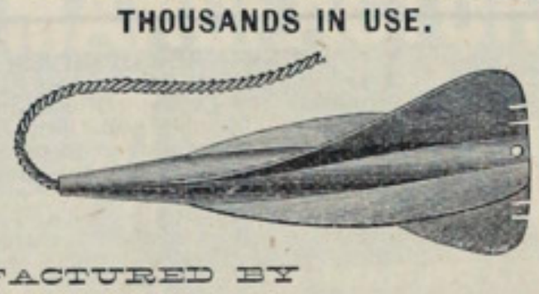

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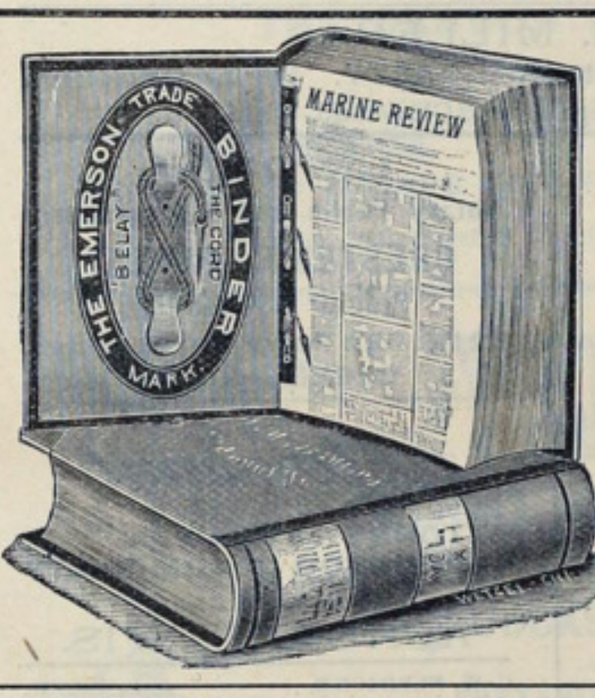

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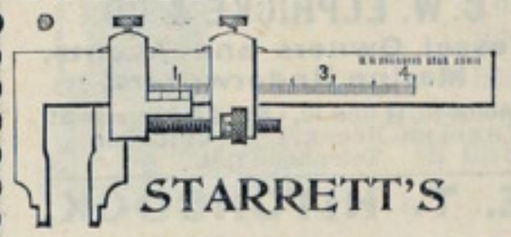

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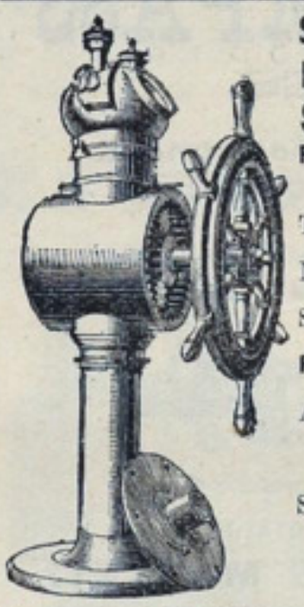

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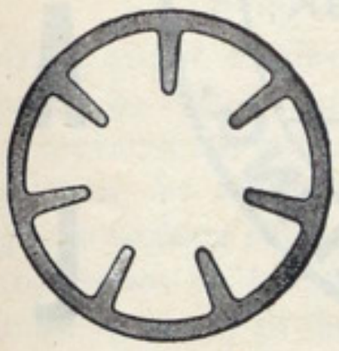

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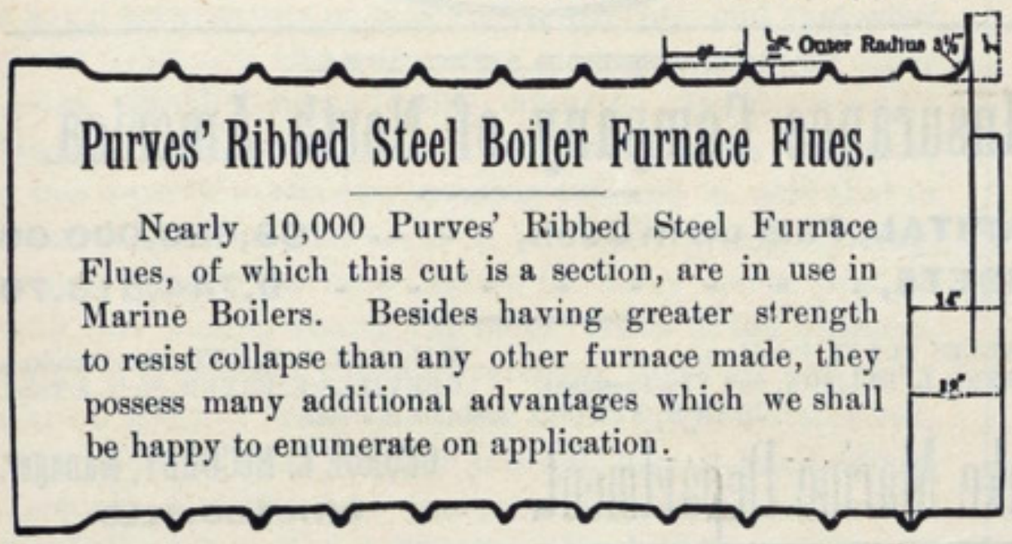

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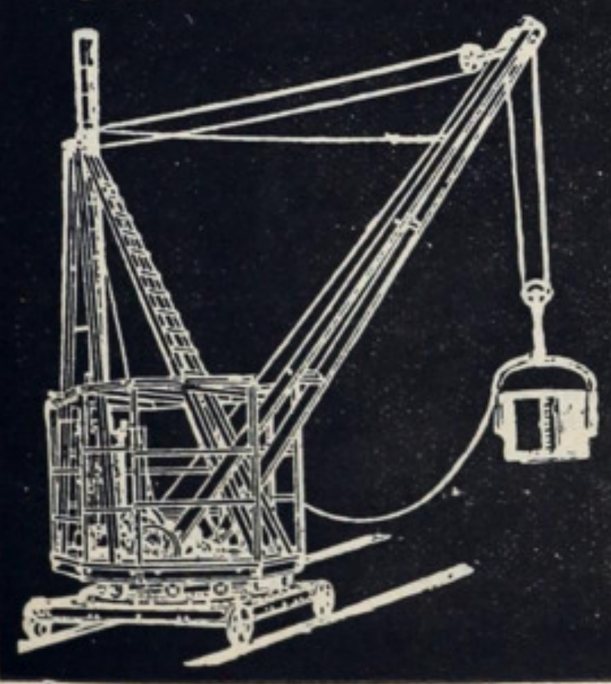

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